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An ISO 9001 Certified Company

Wireless Technology, Inc.

Sidewinder Standard Definition Analog Cameras

SW720A

Installation and Operation Manual

Including:
Optional Electric Brakes (ENG)
Optional Nitrogen Pressurization (P)
Optional Connector Interfaces (HV)(AMP)

REVISION 04/06/15

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INFORMATION

FCC NOTICE
This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

1.) This device may not cause harmful interference.
2.) This device must accept any interference that may be received, including interference that may cause undesired operation.

READ THIS MANUAL
Every effort has been made to insure that this WTI system is of the highest quality. This product has been carefully inspected to comply with rigid quality standards before shipment to you. In consideration of your investment and the desire to obtain full performance capability engineered into your new WTI product, we recommend that you read this manual before attempting to operate your system.

FOR MORE ASSISTANCE OR MORE INFORMATION
WTI (Wireless Technology, Inc.)
2064 Eastman Avenue, Suite 113
Ventura, CA 93003-7787

TOLL FREE. 866/gotowti (468-6984)
TEL. 805/339-9696
FAX. 805/339-0932

EMAIL: sales@gotowti.com

INTERNET: http://www.gotowti.com

The software / firmware furnished with the equipment is confidential to and is copyrighted by *Wireless Technology, Inc. (WTI)* It is not to be copied or disclosed in any manner without the consent of *Wireless Technology, Inc. (WTI).* The software/firmware is furnished to the purchaser under a license for use on a single system.

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PRODUCT WARRANTY AND REPAIR

PRODUCT WARRANTY

We appreciate your purchase of *Wireless Technology, Inc. (WTI)* security products. We take pride in the quality of our products and have manufactured each new WTI product to exacting quality standards. In normal use, it will provide you with years of satisfactory performance. However, should you experience difficulty; you are protected under the provisions of this warranty.

WTI warrants to the original user a product that is free of defects in materials and workmanship in normal use. WTI warrants to the original user that WTI's products will be free of defects in materials and workmanship in normal use for a period of 24 months from the date of sale. WTI's obligation under this warranty shall be limited to the repair, including all necessary parts and the cost of labor connected therewith, or at our option, the replacement of any product that shows evidence of a manufacturing defect within the warranty period. This warranty is extended to all WTI products purchased and used within the United States of America and is valid only when service is rendered by the authorized WTI (*Wireless Technology, Inc.)* Warranty Station.

This warranty shall not apply to appearance or accessory items including, but not limited to, knobs, connectors, cabinets and connecting cables. This warranty shall not, in addition, apply to repairs or replacements necessitated by any cause beyond the control of WTI including, but not limited to, acts of nature, improper installation, misuse, lack of proper maintenance, accident, voltage fluctuations, unauthorized repairs or modifications.

This warranty becomes void in the event serial numbers are altered, defaced or removed, or an attempt is made to field service or alter performance of any WTI products.

WTI reserves the right to make changes in design, or to make additions to, or improvements upon, products without incurring any obligation to install the same on products previously manufactured.

The foregoing is in lieu of all other warranties expressed or implied and WTI neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with the sale of our products. In no event shall WTI or its Authorized Dealers be liable for special or consequential damage arising from the use of this product, or any delay in the performance of this warranty due to causes beyond its control.

PRODUCT WARRANTY AND REPAIR

REPAIR AUTHORIZATION

Please contact *Wireless Technology, Inc. (WTI),* to obtain a repair authorization number (RA) and provide the following information:

1.) Product Model & Serial Numbers

2.) Date of shipment, purchase order number, sales order number or WTI invoice number.

3.) Details of the defect or malfunction. If there is a dispute regarding the warranty or product, which does not fall under the warranty conditions stated within the description of the written warranty, please include a written explanation with the product when returned.

SHIP FREIGHT PRE-PAID TO:

WTI (Wireless Technology, Inc.)
2064 Eastman Avenue, Suite 113
Ventura, CA 93003-7787
TEL 805/339-9696
FAX 805/339-0932

RETURNS

No unauthorized returns will be accepted. All returns must have an authorized (RA) number issued by the factory (CA number if returned for credit and RA number if returned for repair). Products returned for repair or credit will be rejected if no authorization number has been issued or freight has not been pre-paid. All merchandise returned for credit will be subject to a 20% restocking and refurbishing charge.

PRODUCT WARRANTY AND REPAIR

WARNING

The Sidewinder series of IP66/IP67 rated cameras provide a fully sealed, moisture free environment for the internal electronic and mechanical components. If the camera housing cover or seals become compromised due to being struck by objects or damaged during handling, the cameras should be taken out of service IMMIDIATELY, so that the camera can be returned to WTI for repair. This will help prevent further EXPENSIVE internal corrosion damage from occurring. Below are some examples of Damage that will compromise the sealing integrity of the camera.

IMPORTANT SAFEGUARDS

1.) Read Instructions. It is important to read all safety and operating instructions before installing or using this equipment.

2.) Retain Instructions. Retain this manual and any supplements for future reference.

3.) Follow Instructions. Follow all instructions herein for use of this equipment.

4.) Heed all warnings. Adhere to all warnings on the equipment, and in this manual.

5.) To reduce the risk of electric shock or equipment damage, work on the unit only when the power is shut off and is unplugged from its power source to prevent accidental activation. Also take precautions to avoid contact between the equipment and other electrical wires or power sources that may be present at the installation site.

MODELS AND FEATURES

The Sidewinder Standard Definition 120VAC cameras are available with several signal connector arrangements, optional electric brakes and optional pressurization. The following table provides a quick reference to the major features available in each camera model.

MODEL	36 INCH MS UMBILICAL	36 INCH AMP UMBILICAL	SIDE EGRESS MS	PRESSURIZATION	ELECTRIC BRAKES
SW720A		x			
SW720A-ENG		x			x
SW720A-MS	x				
SW720-MS-ENG	x				x
SW720AP		x		x	
SW720AP-MS	x			x	
SW720HV			x		
SW720HV-ENG			x		x
SW720HVP			x	x	

GENERAL DESCRIPTION

The Sidewinder SW720A is a pan-tilt-zoom camera system that provides standard definition composite 1Vpp NTSC color video over video coaxial cable. The camera provides 360 degree continuous rotation in both the pan and tilt axes, and provides an optical zoom magnification of 36 times. A self-cleaning hydrophilic coating is provided on the front lens window of the camera to ensure clear, crisp video images and to reduce maintenance. An electrically conductive Indium-Tin-Oxide coating is provided on the inside of the front lens window to provide direct window heating and prevent fogging and icing.

The Sidewinder SW720A camera operates on AC line voltages within a voltage range of 85VAC to 265VAC and an operating frequency of 47Hz to 63Hz. The camera umbilical cable is available terminated with an 18 Pin MS style male connector or a 16 Pin AMP style connector.

Camera control signal wiring is provided on an RS-485 serial data port and supports several industry standard protocols, including Pelco D protocol and COHU protocol.

The standard definition analog NTSC video output is 1Vpp with a 75 Ohm output impedance. An F1.4 zoom lens with x36 optical zoom and x12 digital zoom is standard. Electronic Image Stabilization can be enabled to provide stable images when high zoom magnification is used.

The Sidewinder SW720A camera series is designed to operate over a temperature range of -35C to +75C and the entire camera is IP66/IP67 rated. The cameras are all 100% submersion tested during final test to ensure that the cameras are water tight.

The Sidewinder SW720A camera is available with optional camera tube dry nitrogen pressurization and several output signal connector options.

INSTALLATION

RECOMMENDED TOOLS FOR PROPER INSTALLATION

1) Tie wraps to secure cable runs.
2) Set of open end wrenches including 7/16" for mounting bolts.
3) Cordless power drill for mounting some brackets.
4) Safety cable recommended (prevents camera falling during overhead installations).
5) Self-sealing connector tape to weatherproof all cable connections.

INSTALLATION PLANNING

1) The maximum cable length that should be planned for is about 750 feet, which is based primarily on the limitations of transmitting the video signal over long coaxial cable distances.
2) The Sidewinder SW720A camera draws up to 50 Watts maximum, which translates to about 0.59 Amps at the low line voltage limit of 85VAC.
3) Be sure to verify that there are no physical obstructions that might prevent the camera from turning freely in all directions. The camera must be able to rotate 360 degrees in each axis during power up initialization in order to properly initialize the pan and tilt drive positions.
4) Be sure to verify that there are no physical obstructions in the way of any required viewing directions.
5) Be sure that there is access to the end of the umbilical cable on the bottom of the camera to facilitate connecting and disconnecting the camera while it is in place on the mounting bracket or pole.

UNPACKING

Please examine the equipment carefully when unpacking the shipping container. If any damage is noted please be sure to file a claim with the carrier. WTI is not responsible for any damage that occurs during shipping. Please verify that all of the contents are present and carefully check the packing material for any loose items before recycling it.

EQUIPMENT SUPPLIED WITH UNIT

1.) Camera
2.) 4 each ¼-20 x ¾" mounting screws with washers
3.) Quick Start Manual

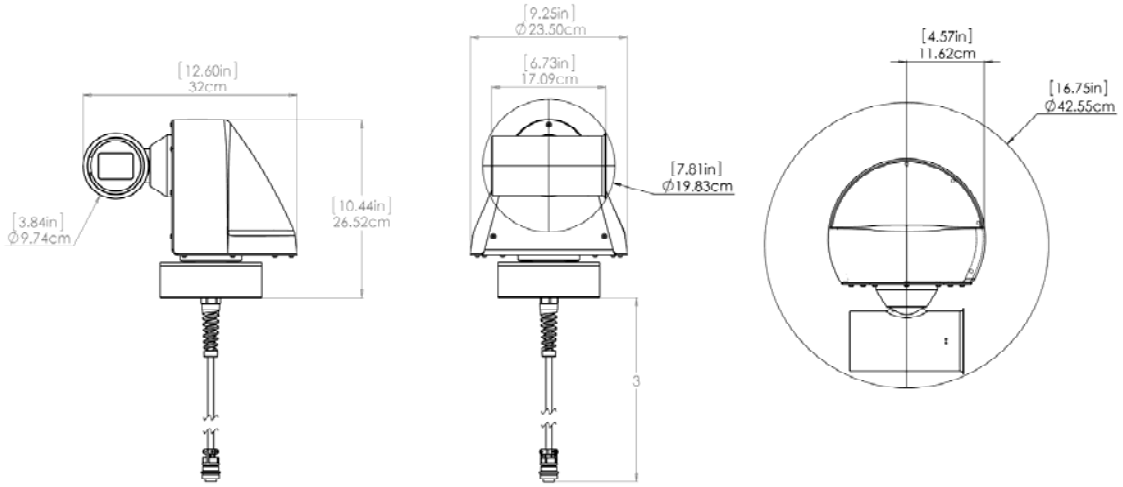
EQUIPMENT THAT MAY BE REQUIRED, BUT NOT SUPPLIED WITH UNIT

1.) Mating connector and strain relief for umbilical extension cable
2.) Camera mounting bracket
3.) Interconnect cables
4.) Video monitor
5.) PC or laptop computer
6.) Setup software

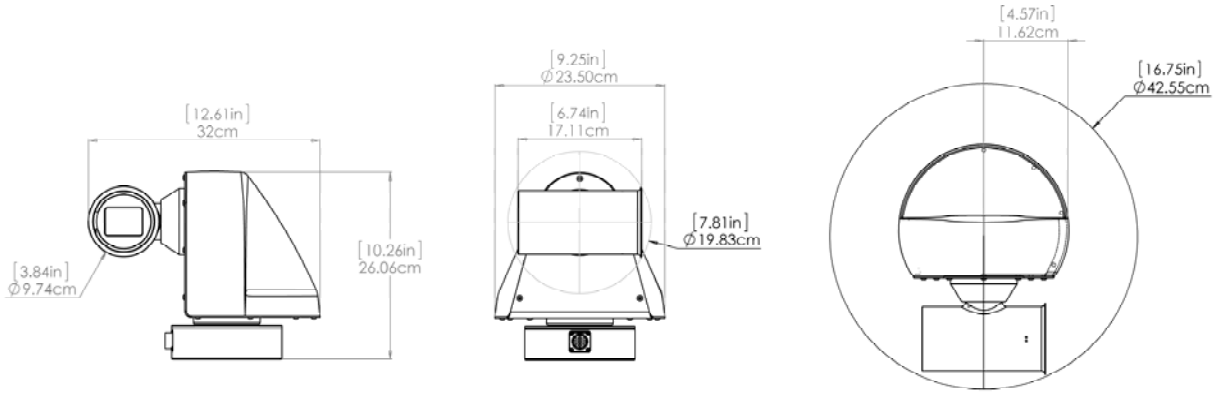
7.)

DIMENSIONS AND MOUNTING

MECHANICAL DIMENSIONS



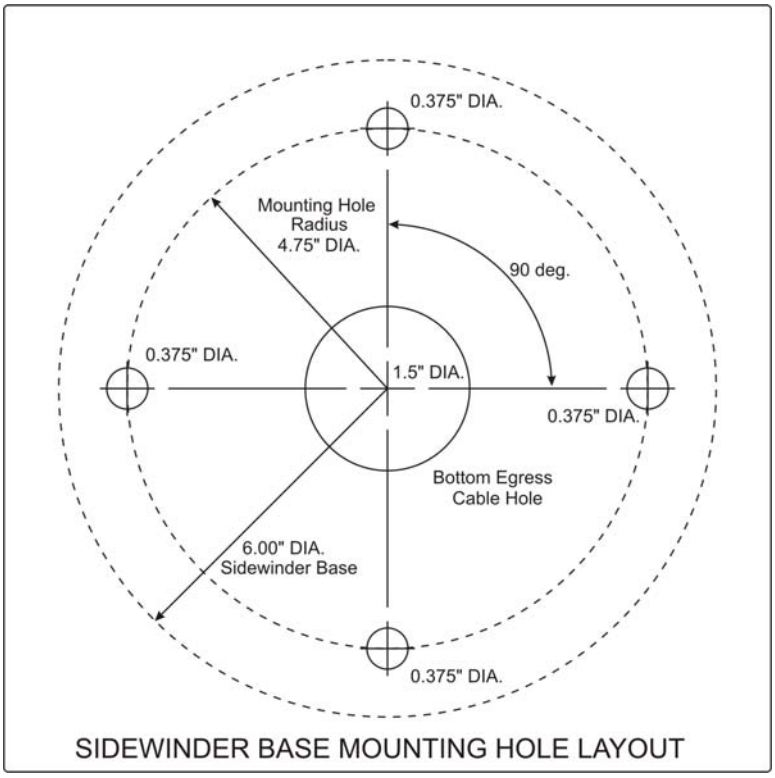
Bottom Egress



Side Egress

MOUNTING

The Sidewinder SW720A camera should normally be mounted in an upright orientation, as shown above. The camera may also be mounted upside down if desired, but a cover of some sort should be placed over the bottom of the camera, extending out to about 6 inches past the camera all around, to prevent debris, dirt or snow and ice from accumulating on the bottom of the camera housing, since the conical shaped profile of the camera will no longer be able to naturally shed material to the sides. The camera may NOT be mounted with the base facing horizontally.



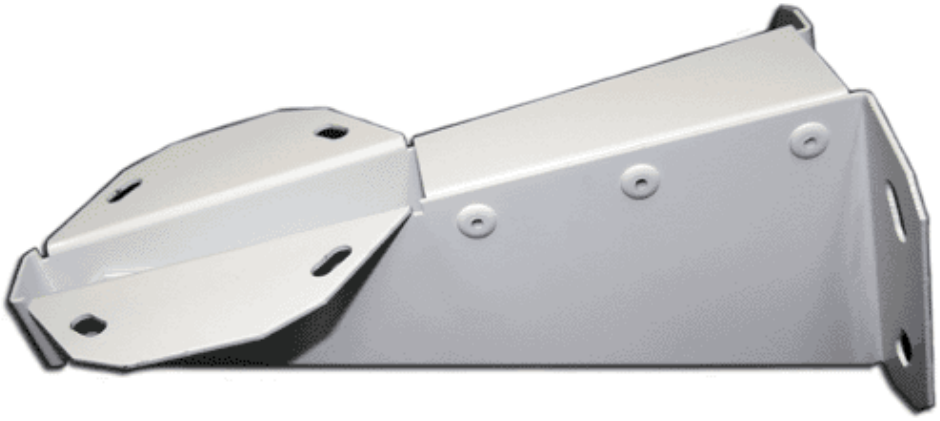
SIDEWINDER BASE MOUNTING HOLE LAYOUT

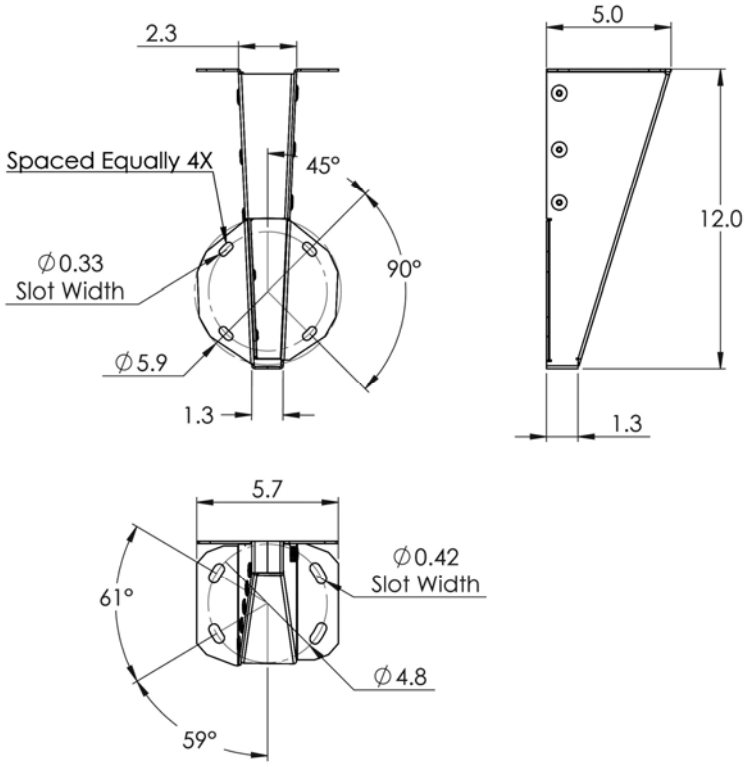
The base of the Sidewinder SW720A camera has four ¼-20 screw holes that are equally spaced, 90 degrees apart, on a 4.75” diameter circle, as shown in figure 2. If mounting screws other than those provided with the camera are used, the length of the mounting screws should be selected so that the screws penetrate no more than 0.75 inches into the base.

MOUNTING ACCESSORIES

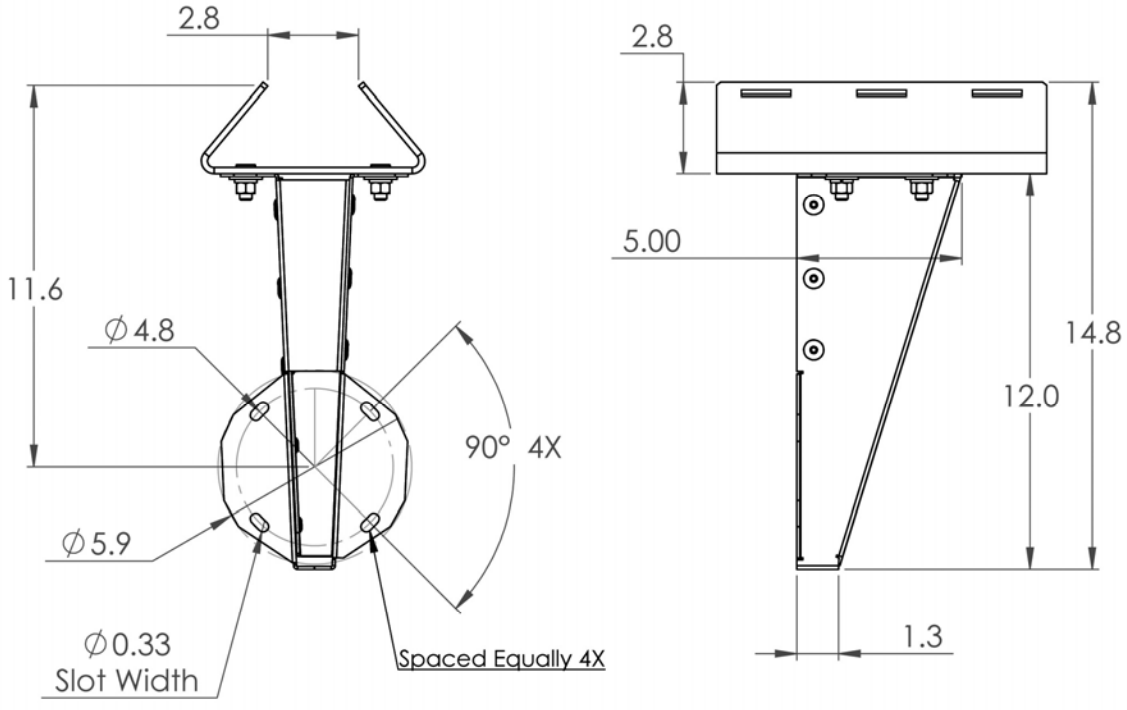
WTI manufactures several different mounts for the Sidewinder SW720A that allow the camera to be attached to pole tops, horizontal poles, vertical poles and walls. The Sidewinder SW720A camera is supplied with a 36 inch umbilical cable to allow the cable to be routed through the camera mount before the actual physical installation of the camera.

SWWM1 – Wall Mount Option



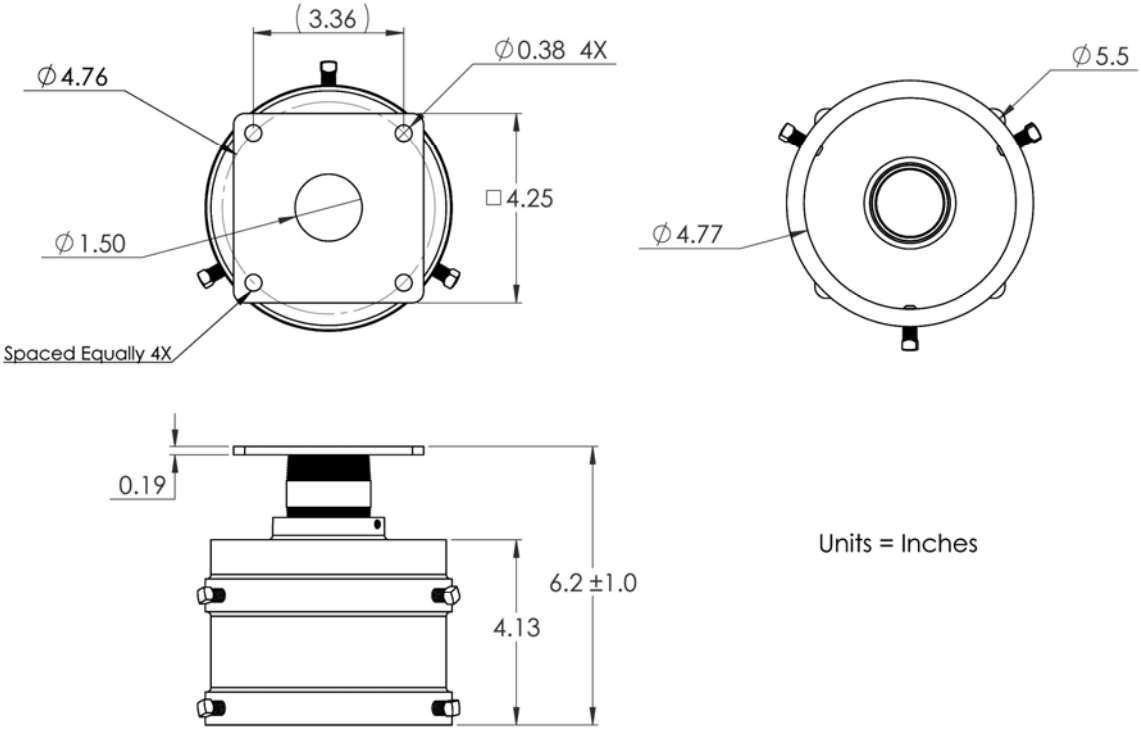


SWWM1 + SWVPA – Wall Mount with Vertical Pole Adapter

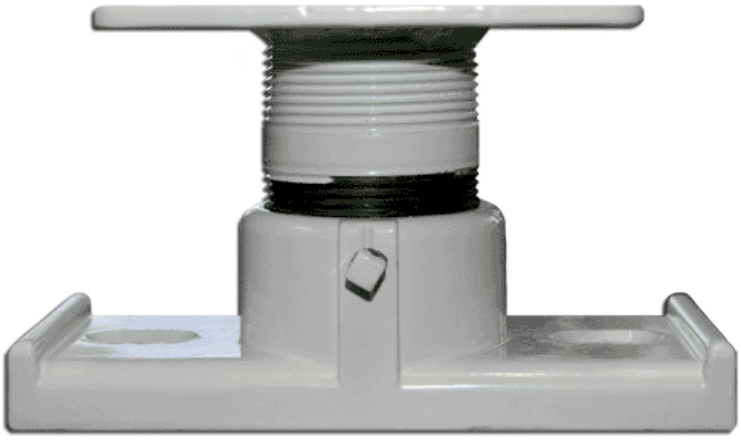


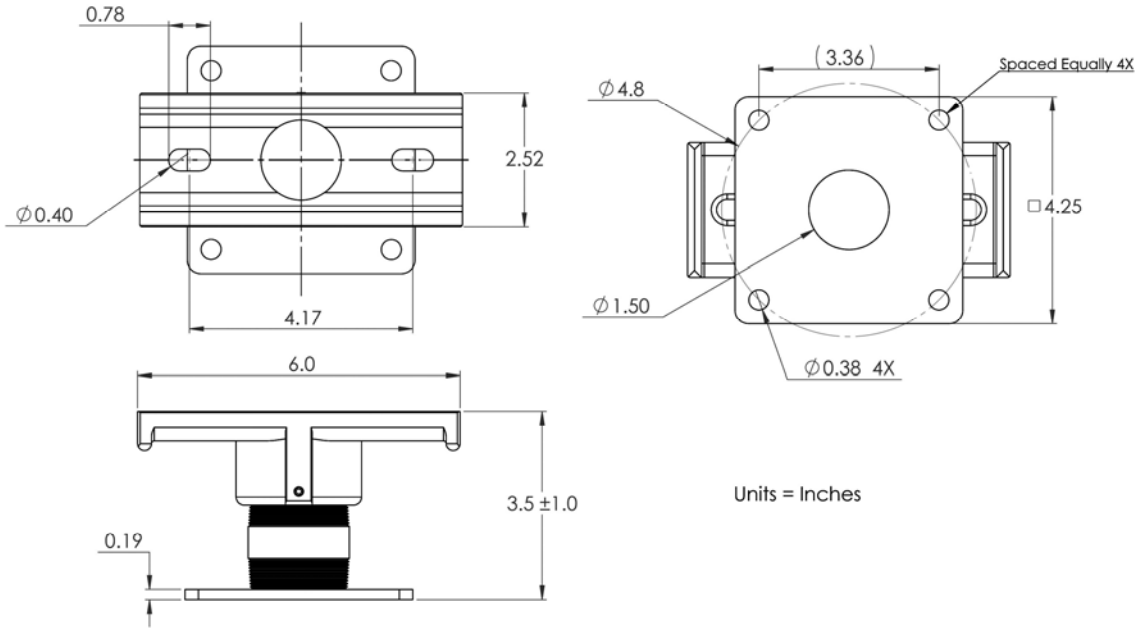
Units = Inches

SWPTM1 – Pole Top Mount

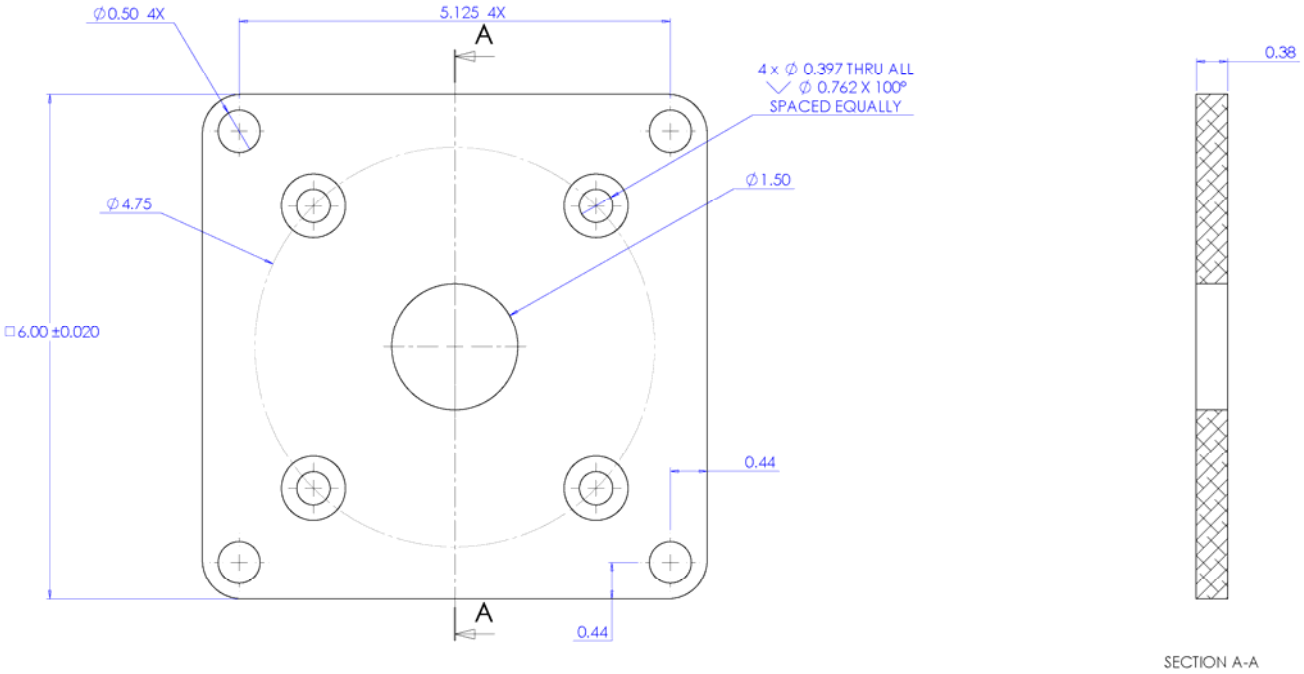


SWHPM1 – Horizontal Pole Mount

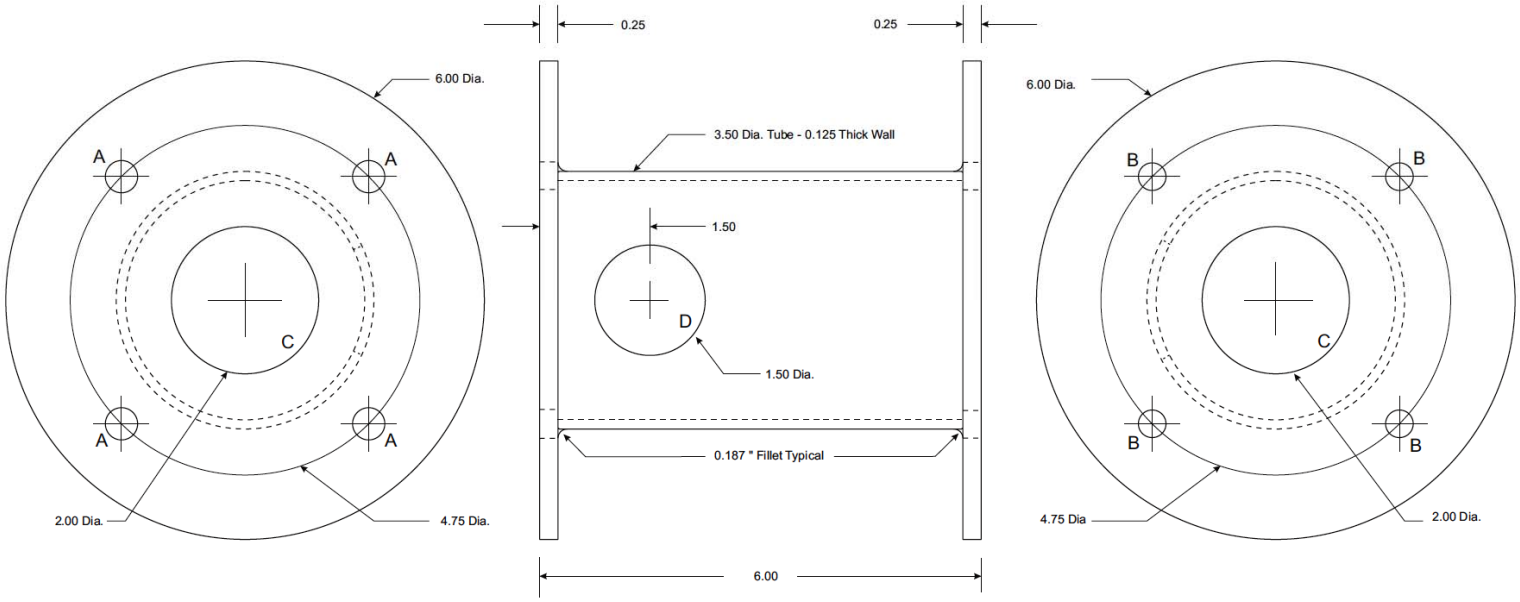




15-4-1430 – 6”x6”x3/8” Square Mounting Plate

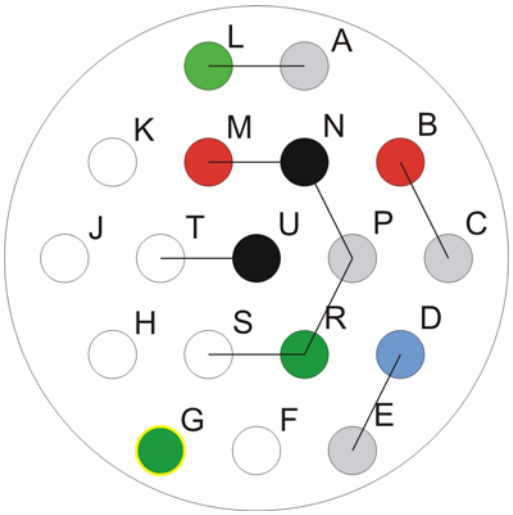


15-4-913 – 6”Round Riser Mounting Base



120 VAC MS STYLE UMBILICAL CONNECTIONS

SW720A-MS - 36 inch umbilical cable with an 18 pin MS style connector
SW720AP-MS -36 inch umbilical cable with an 18 pin MS style connector
SW720-MS-ENG -36 inch umbilical cable with an 18 pin MS style connector

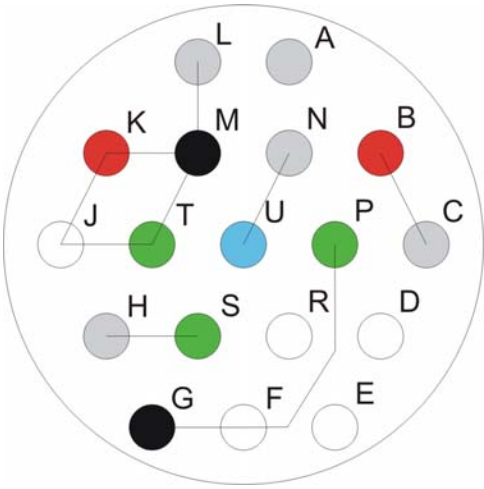


Mating Connector
Female MS - Style MIL-DTL-26482
Amphenol P/N MS3116F-14-18S
Shell Size 14 - 18 Contact Pattern

PIN	*Signal Description*	*Wiring Color Code and Wire Recommendations*
A	SD or Green Video Ground	Coaxial Cable #1 RG-59 Shield
B	Red Video Output (HD Only)	Coaxial Cable #2 RG-59 Center
C	Red Video Shield (HD Only)	Coaxial Cable #2 RG-59 Shield
D	Blue Video Output (HD Only)	Coaxial Cable #3 RG-59 Center
E	Blue Video Shield (HD Only)	Coaxial Cable #3 RG-59 Shield
F		------
G	AC Safety Ground	Green 22 AWG Minimum (Same or heavier than AC Line Input)
H	Cable Shield	Overall Shield
J		------
K		------
L	SD or Green Video Output	Coaxial Cable #1 RG-59 Center
M	Rx+	Red – Twisted Pair #2 22-26 AWG
N	Rx-	Black – Twisted Pair #2 22-26 AWG
P	Data Ground	Data Cable Shield
R	Tx-	Green – Twisted Pair #1 22-26 AWG
S	Tx+	White – Twisted Pair #1 22-26 AWG
T	AC Line Neutral (low)	White 22 AWG Minimum
U	85-265 AC Line Input (high/hot)	Black 22 AWG Minimum

120 VAC SIDE EGRESS MS CONNECTIONS

SW720HV- Side egress 18 Pin MS style connector
SW720HV-ENG- Side egress 18 Pin MS style connector
SW720HVP- Side egress 18 Pin MS style connector

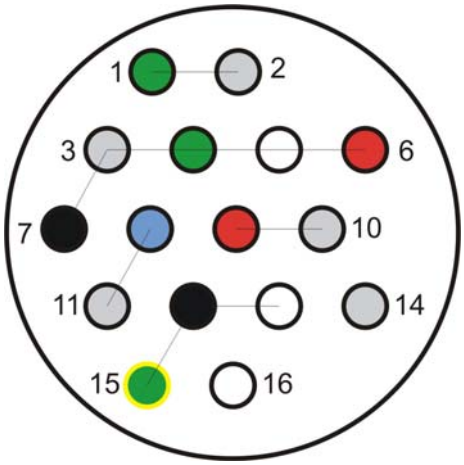


Mating Connector
Female MS Connector
Style MIL-DTL-26482
Amphenol P/N MS3116F-14-18S
Shell Size 14
18 Contact Pattern

PIN	*Signal Description*	*Wiring Color Code and Gauge Recommendations*
A	Chassis Ground	Overall Shield Drain Wire
B	Pr Red Video Output (HD Only)	Coaxial Cable #2 RG-59 Center
C	Pr Red Video Shield (HD Only)	Coaxial Cable #2 RG-59 Shield
D		
E		
F	AC Line Neutral (low)	White #22 AWG Minimum
G	85-265 AC Line Hot	Black #22 AWG Minimum
H	SD or Green Video Shield	Coaxial Cable #1 RG-59 Shield
J	Rx-	White – Twisted Pair #1 22-26 AWG
K	Tx-	Red – Twisted Pair #2 22-26 AWG
L	Data Ground	Data Cable Shield
M	Tx+	Black – Twisted Pair #2 22-26 AWG
N	Pb Blue Video Shield (HD Only)	Coaxial Cable #3 RG-59 Shield
P	AC Safety Ground	Green - 22 AWG Minimum (Same or Heavier than AC Line)
R		
S	SD or Green Video Output	Coaxial Cable #1 RG-59 Center
T	Rx+	Green – Twisted Pair #1 22-26 AWG
U	Pb Blue Video Output (HD Only)	Coaxial Cable #3 RG-59 Center

120 VAC AMP STYLE UMBILICAL CONNECTIONS

SW720A- Bottom egress 16 Pin AMP style connector
SW720A-ENG- Bottom egress 16 Pin AMP style connector
SW720AP- Bottom egress 16 Pin AMP style connector



Mating Connector
AMP Connector - P/N 206037-1
Clamp – P/N 1310307
16 Contact Pattern
Female Pins –
3 each - P/N 66565-4 - #20-24
Female Pins –
12 each – P/N 66109-4 - #24-2

PIN	*Signal Description*	*Wiring Color Code and Gauge Recommendations*
1	SD or Green Video Output	Coaxial Cable #1 RG-59 Center
2	SD or Green Video Ground	Coaxial Cable #1 RG-59 Shield
3	Data Ground	Data Cable Shield
4	Tx-	Green – Twisted Pair #1 22-26 AWG
5	Tx+	White – Twisted Pair #1 22-26 AWG
6	Rx+	Red – Twisted Pair #2 22-26 AWG
7	Rx-	Black – Twisted Pair #2 22-26 AWG
8	Blue Video Output (HD Only)	Coaxial Cable #2 RG-59 Center
9	Red Video Output (HD Only)	Coaxial Cable #3 RG-59 Center
10	Red Video Ground (HD Only)	Coaxial Cable #3 RG-59 Shield
11	Blue Video Ground (HD Only)	Coaxial Cable #2 RG-59 Shield
12	85-265 AC Line Hot	Black 22 AWG Minimum
13	AC Line Neutral	White 22 AWG Minimum
14	Cable Shield	Overall Cable Shield
15	115 VAC Safety Ground	Green 22 AWG Minimum (Same or heavier than Hot and Neutral)
16		

SIGNAL DESCRIPTIONS

AC LINE CONNECTIONS

The AC Line connections should be connected to an AC mains source with a voltage of 85VAC to 265V AC, operating at a frequency of 47Hz to 63Hz. The nominal operating voltage is normally 115VAC or 230VAC. The camera draws 50 Watts maximum, which translates to about 0.6 Amps at the worst case low line voltage of 85VAC.

ANALOG VIDEO CONNECTIONS

An NTSC standard definition video signal output provides a 1Vpp NTSC video signal with a 75 Ohm drive impedance on Pins L and A of the 18 pin MS connector (see wiring chart).

PTZ SERIAL CONTROL PORT

An RS-485 port is provided on the SW720A camera for PTZ and other camera control functions. The SW720A camera series supports several industry standard protocols, including Pelco D protocol and COHU protocol.

There are internal 120 Ohm termination resistors for both the TX and RX signal pairs. The factory shipped default state for the 120 Ohm terminations is for both the TX and RX terminations to be enabled. Applications that involve multiple cameras on the same RS-485 communications lines will require that the terminations on all cameras but one be turned off.

SURGE PROTECTION AND PRESSURIZATION

SURGE PROTECTION

The SW720A camera provides internal surge protection for all of the power, data and video signals.

1.) The AC line power connections are provided with 275 volt 135 Joule MOV surge arrestors rated for 6000 Amp pulses. A 3A SMT fuse is included in the primary circuit to prevent catastrophic printed circuit board damage in the case of gross AC line input overloads.
2.) The video signal lines incorporate a two stage protection circuit consisting of a primary 90V gas discharge tube, followed by a high speed, low capacitance 6.2V 2kW peak power transient voltage suppressor.
3.) The data signal lines incorporate a two stage protection circuit consisting of a primary 90V gas discharge tube, followed by an 18V, 300W, 40A transient voltage suppressor.

SEALING AND PRESSURIZATION

The SW720A camera provides two levels of sealing and pressurization. The entire camera, including the base, housing and camera tube are all sealed to IP66/67 levels to prevent any ingress of dust or moisture. An additional option is available, in which the camera housing tube is pressurized to 5 psi with dry nitrogen gas.

The SW720AP camera with the pressurization option is provided with a Schrader valve to allow periodic replenishment of the dry Nitrogen in the camera housing tube. Since no sealing system will remain 100% airtight indefinitely, it may be necessary to replenish the dry Nitrogen occasionally. This can be done at the same time that the regular camera cleaning is performed. A 15psi pressure relief safety valve is provided to prevent damage to the seals and to prevent blowing out the front or back plates of the camera housing if an unregulated high pressure dry Nitrogen tank were to be connected to the Schrader valve

.

SPECIFICATIONS

IMAGE SENSOR AND LENS

Image Sensor Type	Solid State Interline Transfer Progressive Scan CCD
Image Sensor Size	¼" inch type
Image Resolution	>540 horizontal TV Lines (typically 540 horizontal by 340 vertical)
Pixel Resolution	811 horizontal x 508 vertical (total) – 768(H) x 494(V) viewable
Video Output Format	NTSC, 1Vpp at 75 Ohms, unbalanced
Maximum Lens Aperture	F1.4 at full wide angle – F4.2 at full telephoto
Optical Zoom Range	x1 to x36
Focal Length	3.3mm ~ 119mm
Digital Zoom Range	x1 to x12 with smooth transition from optical to digital
Combined Focal Length	119mm ~ 1428mm
Optical Zoom Speed	2.0s for manual focus preset change - 4.6s for focus trace curve mode
Horizontal Angle of View	60.2 degrees (wide angle) to 1.8 degrees (tele)
Minimum Focus Distance	0.4 inches (wide angle) to 40 inches (tele)
Electronic Stabilization	Selectable for either 5Hz or 10Hz (reduces image resolution slightly)
Auto Focus	Selectable between Auto/Manual
Manual Focus Speed	Approximately 2.0 seconds – near to far
Shutter Speed	Adjustable from 1 second to 1/30,000 second. Settings below 1/60 second increase integration time to improve low light sensitivity with video frame store to provide continuous video output.
Auto Iris	Electronically controlled from F1.4 to F32 to provide optimum sensor illumination for constant video output.
AGC Range	0dB to 30dB
Gamma	0.45 (Adjustable)
Color Balance	Auto White Balance with adjustable red and blue levels.
Signal to Noise Ratio	>50dB
Synchronization	Crystal

CAMERA HOUSING MODULE

External Window Coating	High temperature vacuum deposited hydrophilic coating to reduce window cleaning maintenance.
Internal Window Coating	Electrically conductive coating to allow energy saving direct heating of window glass to prevent fogging.
Window Heat Control	Proportionally controlled closed loop window heater drive circuit with outside temperature sensor unit to provide fog free window operation under all environmental conditions.

Block Camera Heating	Temperature sensor and microprocessor controlled image sensor heater to provide reliable operation of zoom lens down to -34 degrees Celsius.

PAN AND TILT DRIVE ASSEMBLIES

Drive Range	360 degrees continuous rotation (both axes)
Drive Speed	Variable from 0.0003 Deg/Sec to 100 Deg/Sec
Drive Resolution	0.005625 Degrees
Drive Repeatability	0.05 Degrees typical
Preset to Preset Time	Selectable between 2 seconds and 5 seconds for 180 degree motion in both axes
Operator Motion Speed	Pan and Tilt speeds are proportional to both operator speed commands and camera zoom setting.
Brakes	Optional electrically operated pan and tilt motor brakes with a minimum holding torque of 300 oz./in available to maintain the camera position when power is removed from the camera.
Presets	Minimum of 64 presets, each preset to store variable data for pan position, tilt position, zoom setting, focus setting and 24 characters of titling text to be displayed when the preset is recalled. Preset titling to remain on screen until subsequent preset or camera control commands are received.
Tours	Eight tours of up to 32 presets each shall be supported. Presets may be assigned to the tours in any order and may be used multiple times within one tour.
Panning Tours	Any or all of the eight tours may be used as “panning” tours by selecting exactly two presets for the tour. The first preset selected for the tour shall set the counter-clockwise panning limit and the tilt angle for the tour, and the second preset selected shall set the clockwise panning limit for the tour. The positioning system shall pan smoothly from one preset to the other and back again until a subsequent camera command is received.
Sector Zones	Up to 16 sector zones with user settable right and left pan limits may be programmed with one line of up to 20 characters of ID titling per zone.
Privacy Zones	Any Sector Zone may be utilized as a privacy zone by setting the video mode to “OFF” within that zone.
Low Pressure Warning	Provides low pressure warning indicator on video display for cameras supplied with pressurized camera housing option.
Temperature Warning	Provides an internal temperature warning indication on the video display.

Program Memory	Unit is field upgradable using FLASH non-volatile memory to store programming.
ELECTRICAL	
AC Line Voltage	85-265 VAC 50/60 Hz
Power Consumption	<50W with all options operating
Analog Video Output	75 Ohm, 1Vpp, NTSC, EIA-170A
Video Transient Protection	Gas discharge tube followed by 40A 2kW transient voltage suppressor.
Control Data	EIA RS-485 signal levels and drive capabilities.
Data Transient Protection	Gas discharge tubes followed by 40A 300W transient voltage suppressors.
Control Data Protocol	Cohu, Pelco D, WTI, NTCIP, ONVIF and others.
Power interrupt immunity	NEMA TS-2 paragraph 2.1.4.
Power transient immunity	NEMA TS-2 paragraph 2.1.6.
Interface connector	MS style 18 Pin weatherproof and corrosion resistant type with gold plated contacts or AMP style 16 pin type with gold plated contacts.
ENVIRONMENTAL	
Ambient Temp. Limit	-29° F to +165° F (-34° C to +74° C) (Conforms to NEMA TS-2 paragraphs 2.1.2, 2.1.3 and 2.1.5.)
Humidity	100% relative humidity
Protection Rating	IP-67/NEMA-4X/ASTM-B117 (entire camera)
Air Contaminants	Withstands exposure to sand, dust, fungus, salt atmosphere, per MIL-E-5400T, paragraph 3.2.24.7, 3.2.24.8, and 3.2.24.9
Vibration	NEMA TS-2 paragraphs 2.1.9 and 2.2.3 using a 0.5g amplitude signal from 5Hz to 30Hz applied in each of 3 mutually perpendicular axes for 30 minutes.
Shock	NEMA TS-2 paragraphs 2.1.10 and 2.2.4 using a 10g amplitude, 10ms duration shock pulse in each of three mutually perpendicular axes.
Water Spray Immunity	IPx6 rating - IEC 60529 section 14.2.6 using a 25 gallon per minute water stream through a 12.5mm nozzle at nine feet for three minutes. Water Immersion Immunity IPx7 - IEC 60529 section 14.2.7 using an immersion depth of 1 meter measured at the bottom of the camera and a duration of 30 minutes.
Icing Immunity	NEMA 250-2003 section 5.6.
Corrosion Immunity	NEMA 250-2003 section 5.10 and the procedure specified in ASTM-B117 Marine.
EMI Radiation	Within the limits set by FCC Regulations 47 CFR Part 15 for Class A devices.
MECHANICAL	
Dimensions	12.6”L x 10.4”H x 9.25”W (32cm x 29cm x 20cm)
Weight	14.6 lbs. (6.64 kg.)

Construction	White powder coated aluminum and Kydex 550 with all stainless steel hardware

REVISION HISTORY

10/22/14 – Initial release of SW720A 120VAC camera series installation manual. Several other manuals covering different models also released.
11/19/14 – Addition of additional mounting options
12/17/14 – Changed logo
01/20/15 – Addition of Warning to the Warranty and Repair section.